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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,487	11/20/2003	George G. Barclay	51854	8441

7590 02/23/2005

EDWARDS & ANGELL, LLP
P.O. Box 9169
Boston, MA 02209

EXAMINER

ASHTON, ROSEMARY E

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,487

Applicant(s)

BARCLAY ET AL.

Examiner

Rosemary E. Ashton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,22-25 and 52-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 54 is/are allowed.
- 6) ☒ Claim(s) 1-6,22,24,52 and 53 is/are rejected.
- 7) ☒ Claim(s) 7,23,25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/29/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Statutory Double Patenting

1. Claims 1-6,52-54 are directed to the same invention as that of claims 1-6,51-53 of commonly assigned application serial no. 10/717,975 (US 2004/0253535). The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since the basis for refusing more than one patent is priority of invention under 35 U.S.C. 102(f) or (g) and not an extension of monopoly.

Failure to comply with this requirement will result in a holding of abandonment of this application.

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 1-6,52-54 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-6,51-53 of copending Application No. 10/717,975. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claims 1-6 in both applications are directed to a coated substrate comprising the same underlayer and photoresist composition. The language of "for imaging at less than 200 nm" in claim 1 of the instant application is given little weight because the claim is to a substrate, not a method as in claim 22.

Claims 52-54 of the instant application and claims 51-53 of copending application '975 are both directed to an article of manufacture comprising the same components. The language of "for short

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wavelength imaging" in claim 52 of the instant application is given little weight because the claim is to a substrate, not a method as in claim 22.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

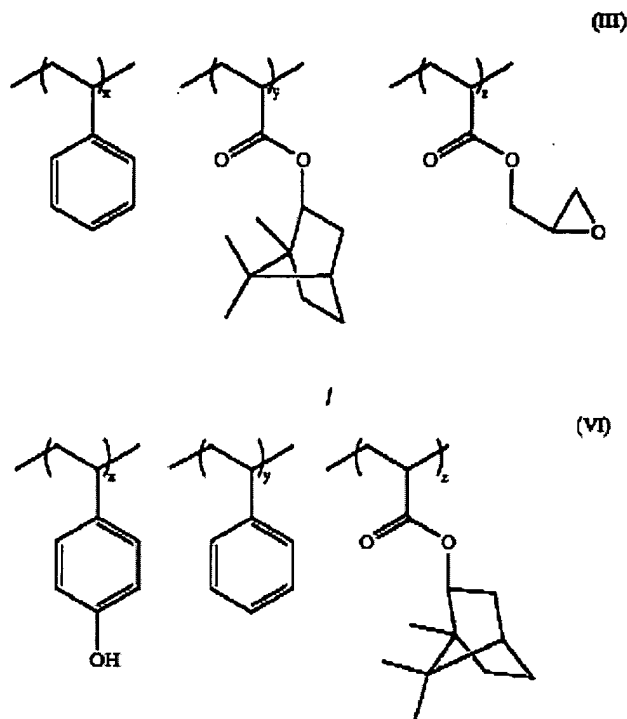
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1,2,4,5,22,24,52,53 rejected under 35 U.S.C. 103(a) as being unpatentable over Khojasteh et al patent application publication no. US 2002/0058204 A1 in view of Brock et al. patent no. 6,444,408.

Khojasteh teaches an underlying composition for a multilayer lithographic processes wherein the underlayer is coated on a microelectronic substrate and comprises a resin having alicyclic groups and chromophore groups wherein the chromophore groups are phenyl groups as shown in polymer (III) or polymer (VI) below as in claims 1 and 2.

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Chromophore groups other than phenyl are taught in section 44 are non-fused aromatics such as phenol or fused aromatics such as anthracene, thus making obvious the limitation of claim 4.

As shown above, both polymers III and VI have isobornyl groups as in claim 5.

In sections 71 and 82 Khojasteh teaches the preferred resist for overcoating the underlayer composition is a silicon containing resist and in section 82 it states the underlayer comprising polymer (III) was coated with a silicon containing resist as taught in the copending application 09/514,212 which is Brock et al. Khojasteh does not teach the resist has a photoactive component.

[0082] The above polymer was formulated into a planarizing underlayer composition by combining with 4.75 wt. % of an acid generator di-(t-butyl) iodonium perfluorobutane sulfonate (PFBS) in PMA solvent. A solution was coated to 5000 Å and baked at 225.degree. C. for 2 minutes prior to resist coating with a silicon-containing resist described in copending application Ser. No. 09/514,212.

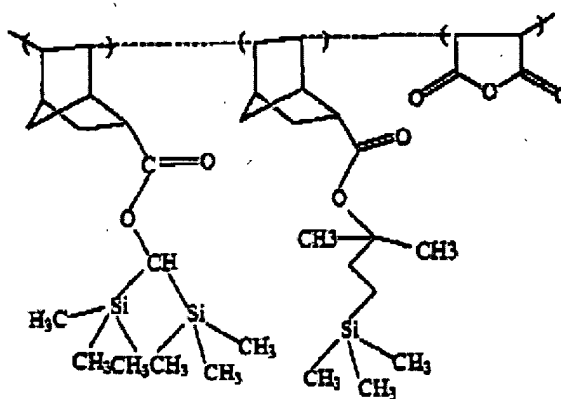
The silicon-containing resist of Brock is taught in example 11. The silicon-containing polymer is shown below and the composition also has a photoacid generator as a photoactive component.

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It would have been obvious to one of ordinary skill in the art to use the resist composition of Brock as the resist composition in Khojasteh with a reasonable expectation of obtaining a substrate for making integrated circuits because Khojasteh teaches the underlayer should be used with the resist compositions taught in Brock having copending application ser. no. 09/514,212.

7. Claims 1,2,5,22,24,52,53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brock et al U.S. patent no. 6,444,408.

Brock teaches a resist composition for use with an underlayer in making integrated circuits. A coated silicon substrate is formed in example 11 using an underlayer composition comprising a resin having alicyclic groups (epoxydicyclopentadiene methacrylate) and chromophore groups (phenol from hydroxystyrene). Over the underlayer is a resist composition comprising a silicon containing resin (silicon component), as shown below, and di(t-butyl)iodonium perfluorooctane sulfonate as a photoacid generator (photoactive component). Hydroxy styrene is a phenyl group substituted with a hydroxyl group as in claim 5.



As stated in example 11 the coated substrate having the underlayer and the resist layer is exposed to 193 nm radiation as in claims 22 and 24.

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Allowable Subject Matter

8. Claims 7,23,25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach a coated substrate having an underlayer comprising a resin having aromatic and/or alicyclic groups and a second resin having chromophore groups. It also does not teach a method of forming a relief image using the coated substrate by exposure at less than 170 nm or 157 nm.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 571-272-1326. The examiner can normally be reached on Mon-Fri, 11:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rosemary E. Ashton
Primary Examiner
Art Unit 1752

February 21, 2005



ROSEMARY ASHTON
PRIMARY EXAMINER